

QUICK START GUIDE

SPEECH AUDIOMETRY TESTS

This Quick Guide provides a summary on speech tests available on Senti and Sentiero devices. This includes the following test procedures:

- Speech test platform with recorded speech, e.g. for determination of speech recognition threshold (Universal Speech Test module, Recorded Speech (CD Player) module)
 - o English (US): Spondees Child/Adult, Northwestern University Auditory Test No. 6 (NU-6), Central Institute for the Deaf Wordlist No. 22 (CID W-22), Phonetically Balanced Kindergarten Word Score (PBK-50), Maryland Consonant-Nucleus-Consonant (Maryland CNC)
 - o Dutch: NVA test
 - o French: Mots français CAD
 - o German: Freiburger
 - o Hungarian: Beszéd Teszt
 - o Slovenian: Govorni
 - o Spanish: Dr. Tato
- Live Speech
- Speech Understanding in Noise (SUN)
- Mainzer Audiometric Test for Children (MATCH)
- Munich Auditory Screening Test for Processing Disorders (MAUS)
- Bochum Auditory Speech Discrimination Test (BASD)

In the following the basic device workflow and the different speech tests are described shortly. For more information on each speech test, please refer to the How-To-Manual on the PATH MEDICAL website (<https://pathme.de/support/>).

SPEECH AUDIOMETRY TESTS WITH SENTI / SENTIERO DEVICES

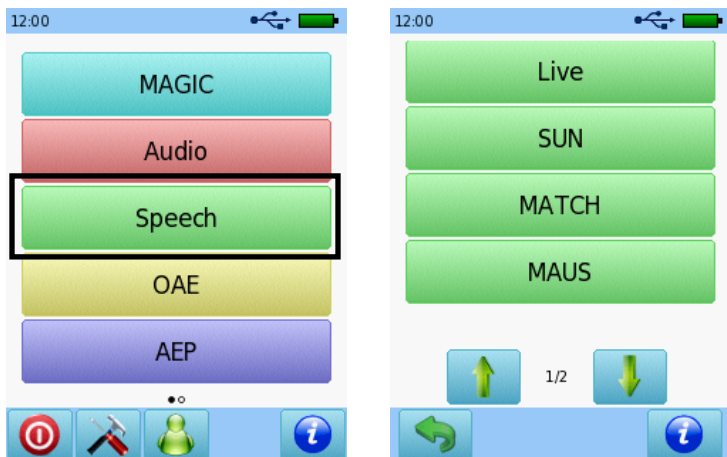
In order to start a speech test connect an appropriate transducer (e.g. headphones, insert earphones, or free-field loudspeakers) to the blue device socket.



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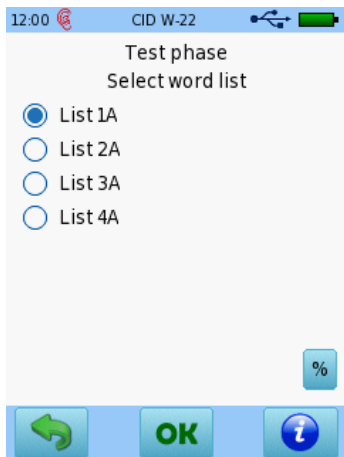
SPEECH AUDIOMETRY TESTS

Select "Speech" from the start menu. Depending on your device license, you will have several speech tests available:

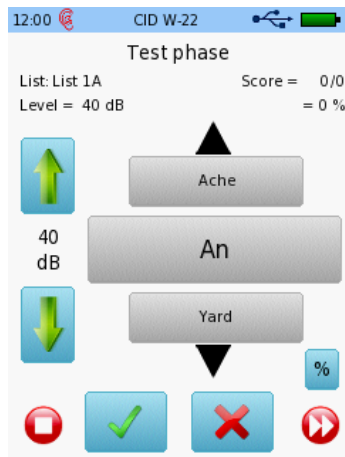


Universal Speech Test (UST): Provides a platform for determination of speech recognition thresholds with recorded word lists in several languages (e.g. Spondees Child/Adult, NU-6, CID W-22).

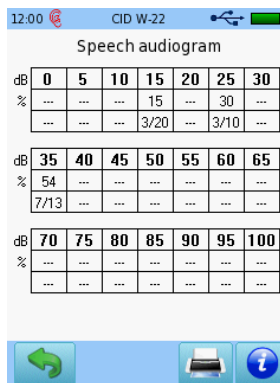
Select the respective speech test (please note that on the speech test selection screen the test name is shown, not UST). When using e.g. the NU-6, CID W-22, PBK-50, or Maryland CNC lists, the level selection is available within the main test screen so that the level can be changed while going through a single word list. The test result is presented as a table and graph and can be switched by pressing the result screen.



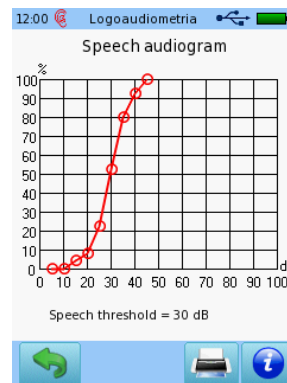
Word list selection



Level selection and scoring



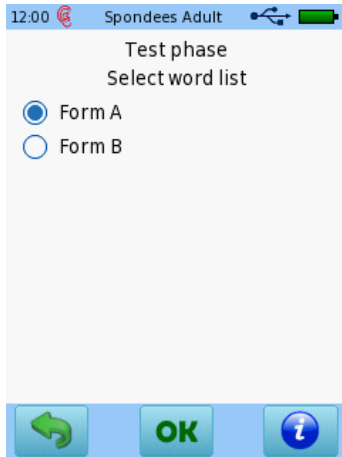
Result views (table, graph)



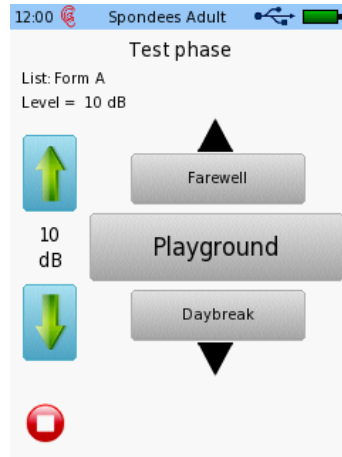
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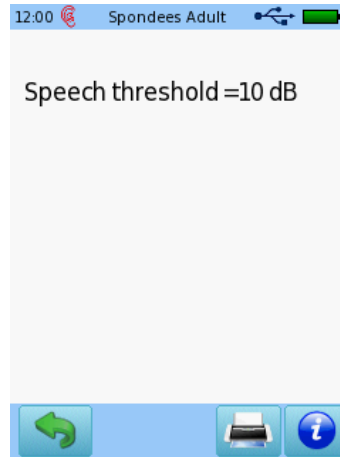
When using e.g. the Spondees Child or Spondees Adult lists, select a word list, and change the speech level until a speech threshold is obtained. The determined speech threshold is the level which is set by the examiner when finishing the test with the stop button.



Word list selection



Threshold determination



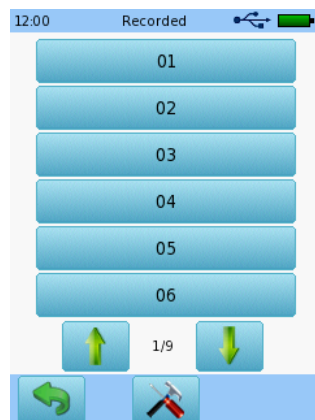
Result view

Recorded Speech (CD Player): Provides the ability to select a CD track and play the words from this track with start, stop, and pause functions.

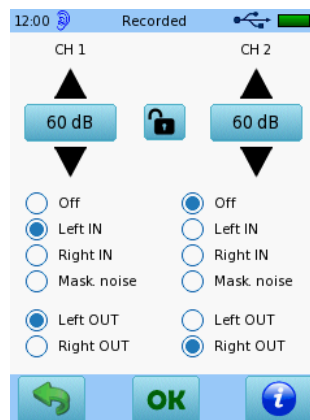
Select "Recorded", configure stimulus and noise, and select the sub-test and track you want to use. After the track selection, the test starts automatically by playing the words from the chosen track as on a CD player. The tested subject has to repeat the word, and the examiner then evaluates and enters the response.



Sub-test selection



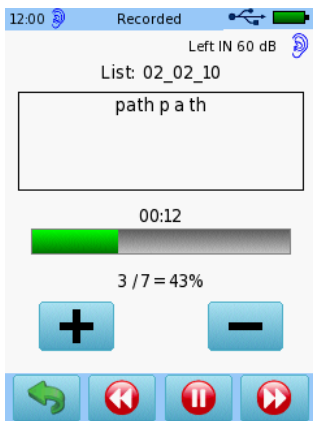
Track selection



Stimulus/noise configuration

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Test user interface (replay of words within track, scoring)

When leaving the test, the result screen is shown as a graphical or tabular speech audiogram similar to the UST result view (see above).

Live Speech: Provides a platform for determination of speech detection threshold, speech recognition threshold, and word recognition with live speech presented by the examiner via microphone.

Select "Live" and select the test mode (SDT: Speech Detection Threshold, SRT: Speech Recognition Threshold, WR: Word Recognition) by pressing the test mode button. Adjust the microphone input level if necessary. Once the settings are correct, start the test by speaking into the microphone at the desired level. Use the appropriate buttons to set the stimulus level, accept the threshold, or adapt the score.



SDT user interface



SRT user interface



WR user interface with accepted threshold

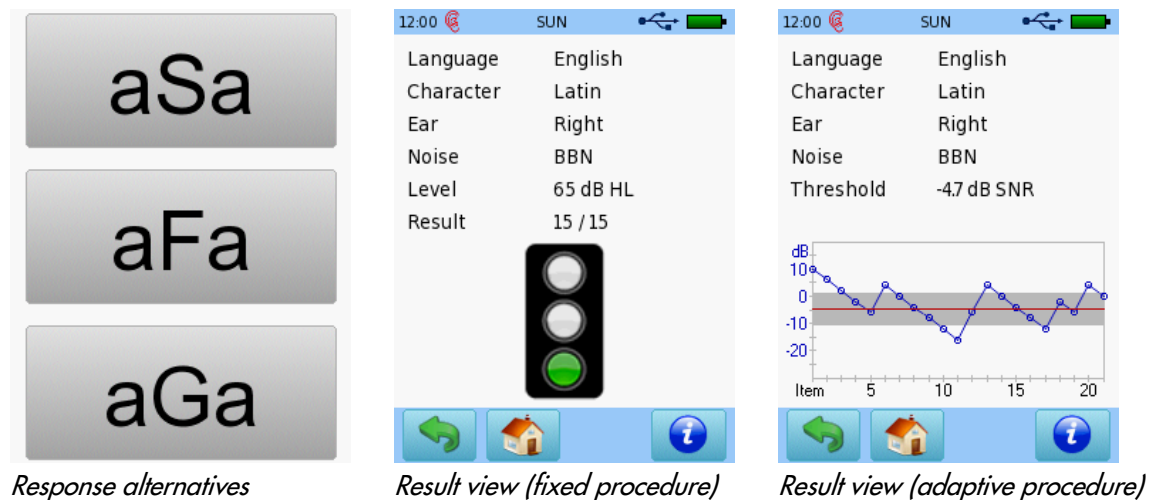
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The result screen shows a graphical or tabular speech audiogram similar to the UST result view (see above) including the word recognition score and the determined speech detection and recognition threshold.

Speech Understanding in Noise (SUN): Provides a self-controlled speech in noise test aiming at the identification of consonants by presenting vowel-consonant-vowel (VCV) logatomes. Currently available pronunciations are: US English, Italian, and German.

Select "SUN" and configure the test parameters (e.g. fixed/adaptive procedure) in the test module settings. After starting the test, different logatome alternatives are presented and the tested subject is asked to select the button, which corresponds to the word that has been understood. The result is shown as score (fixed procedure) or threshold (adaptive procedure).



Mainzer Audiometric Test for Children (MATCH): Provides an image-based self-controlled speech test aiming at the identification of words representing the typical vocabulary of a two-year-old child. The test can be performed in quiet or in noise. The test is currently available in German.

Select "MATCH" and configure the test parameters (e.g. fixed/adaptive procedure, with/without noise) in the test module settings. After starting the test, a box is presented, which needs to be pressed for starting the stimulus. Four response alternatives are presented as images. The tested subject is asked to select the image, which corresponds to the word that has been understood. The result is shown as score (fixed procedure) or threshold (adaptive procedure).

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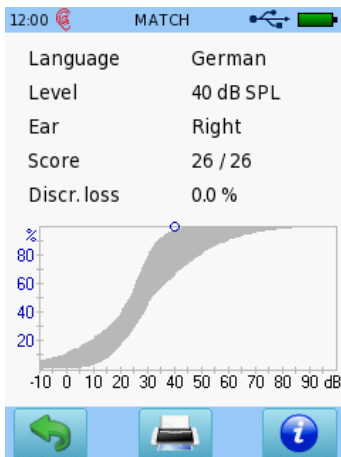
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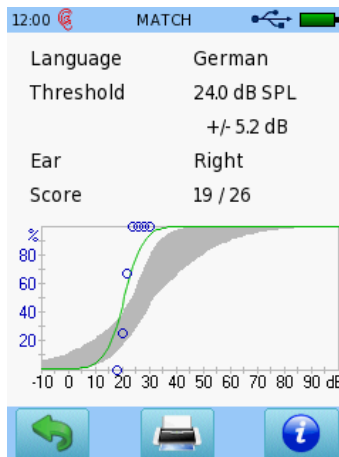
Start stimulus



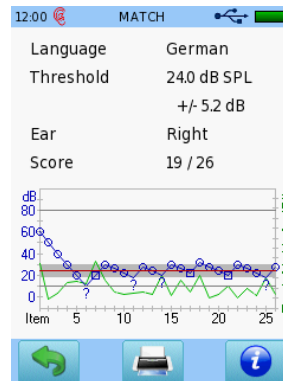
Response alternatives



Result view (fixed procedure)



Result views (adaptive procedure)

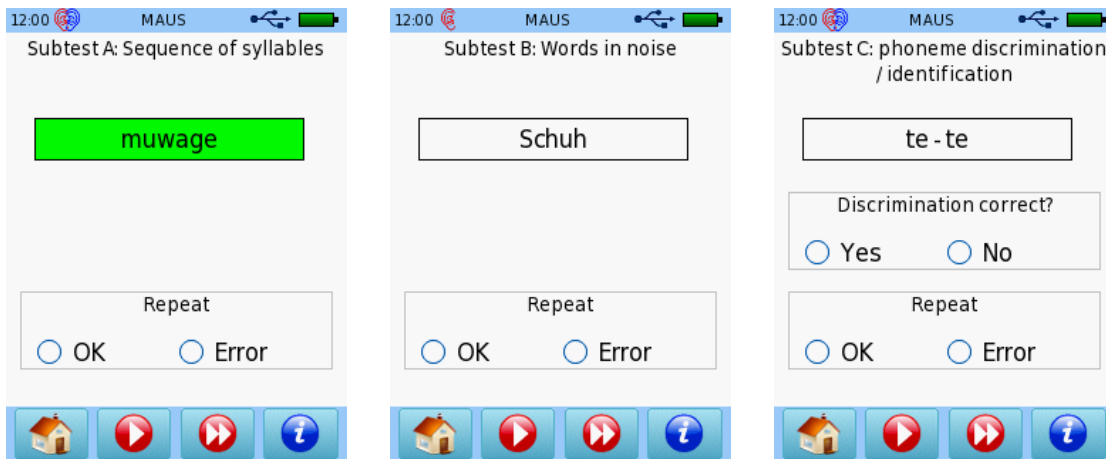


Munich Auditory Screening Test for Processing Disorders (MAUS): Provides a screening test for auditory processing disorder. The test consists of three sub-tests: sequence of syllables, words in noise, and phoneme differentiation and identification. The test is currently available in German.

Select "MAUS" and follow the instructions on the screen to perform the three different sub-tests. The result is presented as score for each sub-test.

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Different MAUS sub-test user interfaces

Sub-test	Score
Sequence of syllables	36
Words in noise right	12
Words in noise left	12
Words in noise total	24
Phoneme discrimination	22
Phoneme identification	22

8;6 to 11 years

<30	30-40	41-60	61-70	>70
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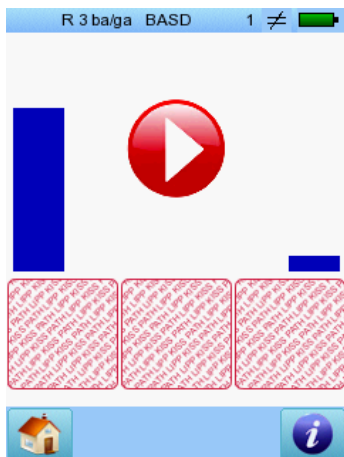
Result view (scores)

Bochum Auditory Speech Discrimination Test (BASD): Provides a test battery for determination of speech development deficits and related auditory processing disorders. The test includes multiple sub-tests (differentiation of consonants, just noticeable differences in frequency, level, duration, and amplitude modulation). The “differentiation of consonants” sub-test is currently available with German pronunciation.

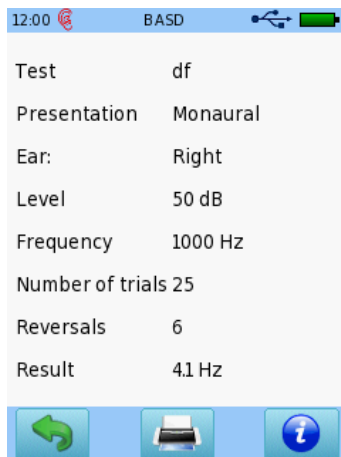
Select “BASD” and configure the appropriate discrimination task in the test module settings. Three stimuli are presented. Two of these three stimuli are identical, i.e. they feature the same consonant, level, frequency, duration or amplitude modulation. The two identical stimuli shall be indicated by the tested subject by uncovering the corresponding two cards.

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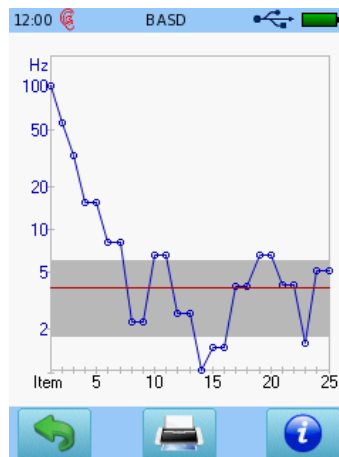
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BASD user interface



Result view (discrimination)



Result view (time course)

SPEECH AUDIOMETRY WITH FREE-FIELD LOUDSPEAKERS

Speech audiometry tests (except Live Speech, MAUS, BASD) can be performed using free-field loudspeakers. In order to use the free-field loudspeakers, connect the cable to the blue connector on the device and to the loudspeakers.



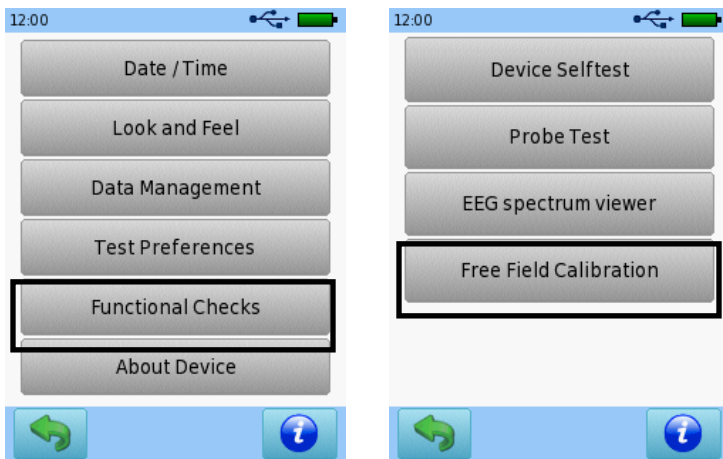
Free-field loudspeaker connection cable


From the main screen, press the Tools  button to access the "Settings" menu.

Select "Functional Checks" and then "Free Field Calibration". The menu will guide you through the calibration process.

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A detailed explanation on the free-field loudspeaker calibration procedure is available on the device when pressing the  button.

SPEECH TEST LICENSE OVERVIEW

SNAM	SUN (US English)	UT01	Logaudiometria Dr. Tato (Spanish)
SNIT	SUN (Italian)	UT02	Freiburger (German)
SNDE	SUN (German)	UT06	Govorni (Slovenian)
MHDE	MATCH (German)	UT08	Spondee Child (US English)
MSDE	MAUS (German)	UT09	Beszéd Teszt (Hungarian)
LPDE	BASD (German)	UT10	Spondee Adults (US English)
		UT11	NU-6 (US English)
		UT12	CID W-22 (US English)
		UT13	PBK-50 (US English)
		UT14	Mots français CAD (French)
		UT15	Maryland CNC (US English)

If you are interested in further speech test implementations please contact PATH MEDICAL (info@pathme.de).

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Quick Guide Information

Release date: 2019-04
Revision: 02
Valid from: Firmware Rev. 2.5, Mira PC Software Rev. 2.0
Applies to: All Senti / Sentiero devices

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Errors and omissions excepted.

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